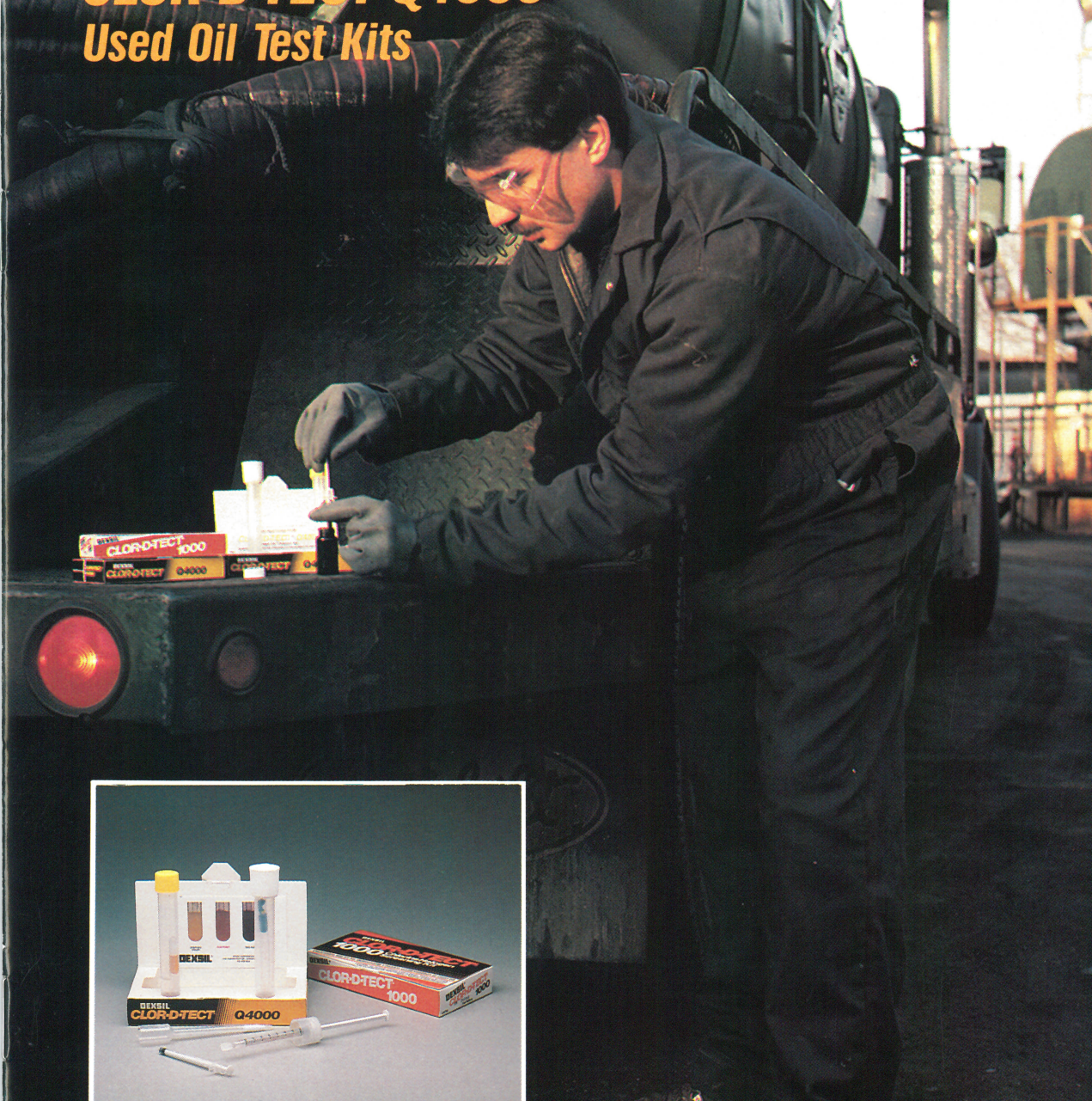


**CLOR-D-TECT 1000™**  
**CLOR-D-TECT Q4000™**  
**Used Oil Test Kits**



**DEXSIL®**

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# The Test Kits

In response to regulation 40 CFR 261 the Environmental Protection Agency asked Dexsil to develop a field portable test kit to analyze used oil samples accurately and easily for total chlorine content. The results of that research are the Clor-D-Tect 1000 and the Clor-D-Tect Q4000 analytical test kits.

Both kits are portable, easy to use, and inexpensive. They are designed to be used in the field by untrained personnel. Each disposable kit contains directions and everything that is required to run the test.

Clor-D-Tect 1000 provides a go-no go result at a level of 1000 ppm chlorine. The kit tells you immediately if your sample is above or below the 1000 ppm limit set by EPA, and lets you know if your oil sample has to be classified as hazardous.

Clor-D-Tect Q4000 gives the user a quantitative reading of total chlorine content between 100 and 4000 ppm. This kit is extremely useful when different oil lots are

to be blended or when the user is interested in just how close he may be to the 1000 ppm limit. The kit takes about a minute longer than the Clor-D-Tect 1000, but is just as easy to use and requires no training.

A recent EPA study reported that:

***The kit (Clor-D-Tect) can probably be used as a screening kit throughout the used oil industry, from the generator to the recycler to the transporter and burner. There are few false positives and negatives and minimal matrix effects. The kit is simple to use. One does not need to understand the chemical reactions that occur to obtain accurate results. A complete test requires approximately 15 minutes to complete. The greatest utilities for their regulation are the portability and affordability of the kit.<sup>1</sup>***

<sup>1</sup> A. Gaskill, Jr., E.D. Estes, D.L. Hardison, ***Evaluation of Methods for Determining Chlorine in Used Oil***. Final Report, EPA Contract No. 68-01-7075, Work Assignment No. 51, US EPA, Office of Solid Waste, August 1986.

# Each Kit Contains

Reaction Test Tube

Instructions

Indicator Test Tube



Titration Burette

Sampling Syringe

Reaction Test Tube

Indicator Test Tube

Instructions



Filtration Funnel

Sampling Syringe

Filtration Funnel

# Technical Approach

**Clor-D-Tect's ability to transform organic chlorine to inorganic chloride makes it a fast and easy method for determining total halogen concentration.**

In all versions of the kit a metallic sodium reagent is used to strip chlorine atoms from chlorinated organic compounds which may be present in the oil. The resulting chloride ions are then extracted into a water-based buffer solution where they can be readily detected. The final method of actually detecting the chloride in this buffer solution is different for each kit.

**Clor-D-Tect 1000**—In this kit, an ampule containing a predetermined amount of mercuric nitrate is broken in the buffer solution. Mercuric nitrate will react with any chloride that is present in the solution. Another ampule containing an indicator solution is

then added. This indicator turns a bright purple color in the presence of unreacted mercuric nitrate, but will not turn color if chloride present in the solution has already reacted with the mercuric nitrate. In this manner, a negative test (<1000 ppm) shows up as a purple result while a positive test (>1000 ppm) results in no color change at all.

**Clor-D-Tect Q4000**—This quantitative kit utilizes a burette to slowly add mercuric nitrate to the buffer solution which already contains the indicator agent. At the point where the amount of mercuric nitrate added equals the amount of chloride present, the solution will change from colorless to purple. By indexing the dispensing burette, the amount of chloride present can be read directly off the burette in parts per million.

## LIST OF OIL TYPES THAT CAN BE TESTED:

### SAMPLES

Crankcase Oils  
Hydraulic Fluids  
Diesel Fuel  
Lubricating Oils  
Fuel Oils  
Hydrocarbon based solvents  
Metalworking Fluids & Cutting Oils

### DEXSIL KITS

Applicable  
Applicable  
Applicable  
Applicable  
Applicable  
Applicable  
Works on samples that contain less than 30% water

**PLEASE NOTE:** The Clor-D-Tect kit is designed for use on oil-base liquids and will not work on water samples.

## PARTIAL LIST OF CHLORINATED COMPOUNDS WHICH HAVE BEEN SHOWN TO BE DETECTABLE BY THE CLOR-D-TECT KITS.

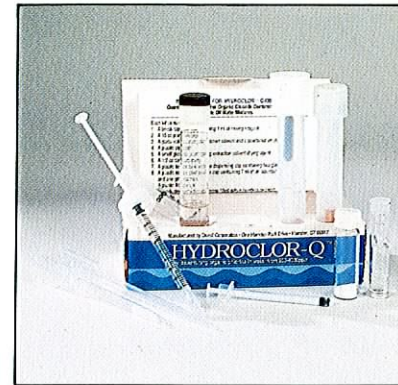
Trichloroethane  
Trichlorobenzene  
Monochlorobenzene  
Dichloroethylene  
Chlorooctadecane

Methylene chloride  
Perchloroethylene  
Freon (113)  
PCB  
Chlorinated paraffins

# Dexsil Products

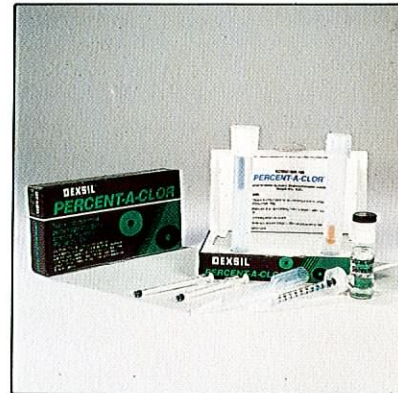
## HydroClor-Q™

The HydroClor-Q quantitative test kit is designed to determine organic chlorine contamination in oil/water mixtures and antifreeze. It is a quick, accurate, easy to use and cost effective method to quantify organic chlorine contamination between 100-4000 ppm. The entire analysis can be performed in the field in less than 10 minutes by non-technical personnel. The test kit comes complete and no other equipment is needed.



## Percent-A-Clor™

The Percent-A-Clor quantitative test kit determines high concentrations of chlorine contamination in used oil. Percent-A-Clor allows the non-technical user to determine quantitatively, total chlorine from 0-10% (100,000 ppm) in less than 5 minutes. Percent-A-Clor is an accurate, cost effective field test kit that comes complete. No other equipment is required.



## TitraClor C™ & TitraClor P™

With more stringent EPA regulations concerning halogenated solvents in used oil, Dexsil's TitraClor Kit has been proven to be an ideal method for determining total halogens down to 100 ppm. Both kits replace the tedious and time consuming bomb oxidation technique (ASTM D808) with a sodium metal mixture which chemically strips halogens off their organic backbone. TitraClor C is the simplest version of the two kits; it includes standardized mercuric nitrate and an indicator solution which allows the user to titrate the sample after it is reacted with sodium. The only equipment required is a titration burette. TitraClor P analyzes the sample potentiometrically. An automatic titrator is recommended and using a silver/silver chloride electrode the titrator can be programmed to print out in parts per million chlorine.

